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SOUTHERN REGIONAL RESEARCH LABORATORY
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New Orleans 19, Louisiana

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U.S. DEPARTMENT OF AGRICULTURE

PUBLICATIONS AND PATENTS

July-December 1949

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NOTE: Single copies of available reprints may be obtained, upon request, from the Southern Regional Research Laboratory, New Orleans 19, Louisiana. Articles indicated by an asterisk (*) are not available.

Copies of patents may be purchased from the United States Patent Office, Washington, 25, D. C.

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BUREAU OF AGRICULTURAL AND INDUSTRIAL CHEMISTRY
AGRICULTURAL RESEARCH ADMINISTRATION
UNITED STATES DEPARTMENT OF AGRICULTURE

ARTICLES AND ADDRESSES

Apparatus, Analytical Methods, and Techniques

1 HOFFPAUIR, Carroll L. and REEVES, Richard E.

DETERMINATION OF GLYCOSIDIC METHOXYL. Anal. Chem. 21 (7) 815-17 (1949).

A method for the determination of small amounts of glycosidic methoxyl, based on the hydrolysis of methyl glycosides by strong sulfuric acid to yield methanol, is described. The methanol is isolated and oxidized to formaldehyde, which is then determined colorimetrically, using a sensitive fuchsin-sulfurous acid reagent. If large amounts of ether-linked methoxyl are present, as in the case of highly methylated cellulose derivatives, the yield of methoxyl is plotted against time and extrapolated to zero to obtain the values for glycosidic methoxyl.

Cotton and Cotton Products

2 BURLEIGH, Edward G. Jr., WAKEHAM, Helmut; HONOLD, Edith; and SKAU, Evald L.

PORE-SIZE DISTRIBUTION IN TEXTILES. Textile Research J. 19 (9), 547-55 (1949).

After modification to permit measurements at lower pressure, the mercury-intrusion method for the study of the pore-size distribution of petroleum earths was applied to the study of fabrics. The results showed significant differences in the pore-size distribution curves of 10 selected fabrics. The peaks of these curves, predominantly a measure of the interfiber pore spaces, fell between pore radii of 2 and 4.5 microns, depending on such factors as fiber fineness or maturity and yarn compression. A comparison of the peak positions with data on air permeability indicated a correlation. High-pressure curves for cotton fibers suggested a collapsing of the lumen. Cotton fibers showed a volume change three times that of rayon filaments when each material was pressured to 10,000 p.s.i.a.

3 COTTON, Richard T., FRANKENFELD, Justus C., and STRICKLAND, Winston B.

INSECT-PROOFING COTTON BAGS. Circular E-783. Processed, 4 pp., July 1949.

A method of insect-proofing cotton bags by chemical treatment, developed by the Southern Regional Research Laboratory in cooperation with the Bureau of Entomology and Plant Quarantine, is described. Essentially the method consists

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of impregnating cotton cloth, or yarns prior to weaving into cloth, with light dosages of pyrethrins, alone or mixed with piperonyl butoxide. Flour-filled bags made of treated cloth repelled insects for the full period of a seven-month test. Certain concentrations of the chemicals gave good protection for eight months. Baking tests conducted by the Milling Department of Kansas State College showed no ill effect on the baking qualities of the stored flour. Cost of the treatment is low enough to make commercial application practicable.

4 REID, J. David, MAZZENO, Laurence W. Jr., and BURAS, Edmund M. Jr.

COMPOSITION OF TWO TYPES OF CELLULOSE PHOSPHATES. Ind. & Eng. Chem. 41 (12), 2831-4 (1949).

Application of an electrotitrimetric procedure revealed marked differences in the structure of two types of cellulose phosphates. The combined phosphorus in cellulose phosphate prepared by treatment of cellulose with urea phosphate is probably entirely in the form of a monosubstituted phosphate ester. No evidence of formation of other, more highly substituted, products was obtained. The structure of cellulose phosphate prepared by the phosphorus oxychloride-pyridine treatment is similar, except that in a typical sample approximately 23 percent of the phosphorus can be accounted for as a disubstituted phosphate ester. The chlorine also present in this product is probably attached directly to carbons of the glucose units. Nitrogen was found in typical samples, presumably due to pyridine.

5 REID, J. David, and MAZZENO, Laurence W. Jr.

PREPARATION AND PROPERTIES OF CELLULOSE PHOSPHATES. Ind. & Eng. Chem. 41 (12), 2828-31 (1949).

The work described in this paper was done as the result of military interest in the flameproofing of cotton cloth. After an evaluation of various methods of phosphorylating cellulosic materials, the authors adopted one involving treatment with phosphorus oxychloride in pyridine. With cellulose in the form of cloth a flame-resistant fabric containing 3.54 percent phosphorus was obtained, but its tensile strength was too low for use in the production of garments. Much of this degradation was avoided in the preparation of samples by the urea-phosphoric acid method of phosphorylation. An attempt was made to incorporate cellulose phosphate as a glowproofing agent into an otherwise successful flameproofing formula, but too large an amount was required to achieve complete extinction of the afterglow.

Article
No.

6 REID, J. David, and DAUL, George C.

THE PREPARATION AND PROPERTIES OF ALKALI-SOLUBLE METAL CARBOXYMETHYLCELLULOSE FIBERS. Textile Research J. 19 (12), 794-801 (1949).

Alkali-soluble fibers, developed as a result of previously reported work on a quickly swellable, partially carboxymethylated cotton yarn, are described. The fibers were produced on a pilot-size spinning machine, as well as on a laboratory scale, from sodium carboxymethylcellulose and suitable metals. A mixed copper-aluminum carboxymethylcellulose fiber was the most satisfactory from the standpoint of strength, appearance, flexibility, feel, and like characteristics. Metal carboxymethylcellulose fibers are similar to the alginic acid fibers developed in England and, if commercially developed, should be suitable for novelty fabrics and other uses where an alkali-soluble fiber is desired.

7 SCOTT, Walter M.

COTTON TODAY AND TOMORROW THROUGH TECHNICAL RESEARCH ON FIBER UTILIZATION. Mimeographed. AIC-245, 7 pp. (1949).

The status of new research recommended by the Cotton Advisory Committee and progress on cotton fiber utilization studies made possible by the Research and Marketing Act are reviewed, with emphasis on the need for improved testing methods and for more complete information on present utilization trends. Some of the major achievements of the Southern Regional Research Laboratory from 1938-1946 are cited as the foundation for intensified research. Recent investigations, both at the Laboratory and by contracting research agencies, aimed at improving the usefulness of cotton for specialized uses, are summarized.

8 SCOTT, Walter M.

* RESEARCH IN TEXTILES IS PAYING OFF: NEW PROCESSES, PRODUCTS DEVELOPED. The Southern Textile News 5 (33). 29 (1949).

The Southern Laboratory's program of cotton utilization research is reviewed with emphasis on its potential benefits to the textile industry. Mill use of the differential dye test is discussed. New fabrics possible as a result of research on partial acetylation, insect-repellency, and water-resistance are described. A cotton opening machine, a new type slasher, a tire cord stretching device, and a

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new draft guide are cited as examples of developments to improve processing efficiency. In conclusion, the need for additional research, particularly research of a fundamental nature, is stressed.

SEE ALSO NOS. 26, 27 and 28.

Cottonseed, Peanuts, Rice and Derived Products

9 ARTHUR, Jett C. Jr., and MANY, Hugh G.

COTTONSEED PROTEIN FIBER. Textile Research J. 19 (10). 605-8 (1949)

Difficulties encountered in isolating protein from cottonseed meal, in dispersing the isolated protein in an aqueous medium in high concentration, and in preparing viscous and tacky dispersions suitable for use in the preparation of an artificial fiber are described; and the Southern Regional Research Laboratory's progress in solving these problems is outlined. Detailed experimental procedures are given on the laboratory production of cottonseed protein fiber having dry strength of 0.6 to 0.7 g. and a wet strength of 0.2 to 0.3 g. per denier. This fiber is yellow to orange in color and has a soft hand. Test data compared with that of other man-made protein fibers are included.

10 ARTHUR, Jett C. Jr

EVALUATION OF PEANUT PROTEIN FOR INDUSTRIAL UTILIZATION. A REVIEW. J. Am. Oil Chemists' Soc. 26 (11), 668-71 (1949).

Peanut protein is composed of several different components or fractions whose physico-chemical properties in colloidal solutions determine the industrial applications of the protein. Although these solutions are extremely complex, certain procedures have been established by which the suitability of peanut protein for use in different products can be evaluated. These procedures, described in the article, include determination of the solubility of the protein in different solvents, analysis of the isolated protein to determine its nitrogen and ash contents and its color when dispersed in sodium hydroxide solutions, determination of the viscosity characteristics of concentrated peanut protein solutions, and specific product testing.

11 ARTHUR, Jett C. Jr.

MORE PRODUCTS FROM PEANUTS. Manufacturers Record 118 (10), 40-1 (1949).

The recent development on a laboratory and pilot plant scale of new industrial products from peanuts is described briefly.

Steps in the pilot plant manufacture of peanut protein and its use in fibers and adhesives are discussed. In its natural state, peanut protein fiber is soft with a light cream color and possesses warmth similar to that of wool. Adhesive products made of peanut protein -- such as plywood glue, rewettable glues, paper coating binders, and window shade sizes -- compare favorably with water-resistant glues made from other proteins.

12 ARTHUR, Jett C. Jr.

PEANUT PROTEIN FOR INDUSTRIAL UTILIZATION: A LITERATURE SURVEY. J. of Southern Research 1 (4), 6-14 (1949).

Research has demonstrated that under certain conditions peanut meal, a byproduct of peanut oil production, is a good source of protein for use in the manufacture of industrial products. The high quality peanut meal produced by the peanut oil-solvent extraction industry just beginning in the South should be an excellent source of peanut protein to further stimulate interest and activity in developing a peanut protein industry. This article reviews the literature on commercial and laboratory processes for producing peanut meal, on the development of processes for extracting and isolating the protein, and on the manufacture and evaluation of peanut protein products. A bibliography consisting of 136 references is appended.

13 ARTHUR, Jett C. Jr., and CHENG, F. W.

PEANUT PROTEIN FOR WINDOW SHADE SIZES. American Dyestuff Reporter 38 (14), 535-7 (1949).

Experiments are described which indicate the suitability of peanut protein for use as a sizing material in window shade manufacture and in similar applications. In the laboratory cotton muslin sized with peanut protein solutions showed tensile and flexibility characteristics similar to those of samples sized commercially with animal glues. Peanut protein also is satisfactory for many other adhesive uses. The cost of isolating and processing it compares favorably with the cost of producing other industrial proteins, and the potential supply is large.

14 CASTILLION, L. E., HALL, C. M., O'CONNOR, R. T. and MILLER, C. B.

EFFECT OF TEMPERATURE ON THE CONTENT OF PIGMENTS OF STORED COTTONSEED. J. Am. Oil Chemists' Soc. 26 (11), 655-9 (1949).

Three pure-bred varieties of cottonseed, G hirsutum, planted and grown under similar environmental conditions, were stored at 38, 77 and 85 degrees F., after determination of their initial contents of lipids, nitrogen, moisture, gossypol, and gossypurpurin. The content of gossypurpurin in all the samples was found to increase in proportion to the temperature and length of storage, while the content of gossypol decreased. During storage another yellow-colored pigment developed which could be separated from gossypol by alkaline extraction of the original chloroform extract of the stored seed. The alkali-extractable portion of the chloroform extract gave a red-colored antimony trichloride reaction product characteristic of gossypol. At least a fraction of the non-acidic pigment in the crude chloroform extracts obtained from stored cottonseed is thought to be diaminogossypol.

15 DeCHARY, J.M. and ALTSCHUL, A.M.

RESEARCH ON EFFECT OF PROCESSING ON THE NUTRITIONAL VALUE OF COTTONSEED MEAL. Oil Mill Gazeteer 54 (2), 13-15 (1949).

In cooperation with the cottonseed industry and nutrition experts, the Southern Regional Research Laboratory has recently inaugurated extensive research on improving the nutritional value of cottonseed meal by the development of new methods, or improvements in present methods, of processing cottonseed. The value of cottonseed meal as a feed depends not only on the quality of its protein but also on the presence or absence of materials which interfere with the growth of animals. The interfering materials are concentrated in the pigment glands and most likely consist of gossypol and gossypol-like compounds. These materials can be bound to the proteins of the meal during processing so that they no longer interfere with the food value of the meal. Once the proper conditions for processing are defined and methods for production control developed, it should be possible for the cottonseed industry to produce a more uniform and far superior cottonseed meal.

16 FEUGE, R.O. and REDDI, P.B.V.

RICE BRAN OIL. III. UTILIZATION AS AN EDIBLE OIL. J. Am. Oil Chemists' Soc. 26 (7), 349-53 (1949).

An odorless, tasteless, and neutral product well suited for use as a cooking oil was obtained by conventional refining, bleaching, and deodorization of rice bran oil produced on a pilot plant scale. The smoke, flash, and fire points were comparable to those of other high quality edible oils. Rice bran oil solidifies less easily than either cottonseed or peanut oil, is more resistant to oxidative rancidity than are the average cooking oils, and can be winterized with little difficulty. During hydrogenation rice bran oil behaves like a typical vegetable oil;

refractive indices are higher than for other natural oils having similar fatty acid compositions; plasticity is almost identical with that of hydrogenated cottonseed oil having a similar iodine value and produced under comparable conditions. The keeping quality of hydrogenated rice bran oil is decidedly superior to that of cottonseed and peanut oils of similar fatty acid composition.

17 GASTROCK, E.A., PERSELL, R.M., SPADARO, J.J., and VIX, H.L.E.

PILOT-PLANT FRACTIONATION OF COTTONSEED. IV. A REVIEW OF PROGRESS. Oil Mill Gazeteer 54 (3), 11-19 (1949).

Since the Southern Regional Research Laboratory was established, its workers have actively investigated the composition, properties, and characteristics of cottonseed pigments in an effort to find some solution to the processing problems occasioned by them. This article reviews the progress of research from the isolation of pigments in the Laboratory to the development and improvement of a pilot plant process for fractionating cottonseed into oil, meal, and pigment glands. Recovery of up to 70 percent of the available meal in cottonseed meats as light-colored, fine meal, essentially free of pigment glands is now possible. The coarse meal fraction, containing about 10 percent of pigment glands would be the logical starting raw material for any industrial utilization of pigment glands or gossypol, but requires further treatment for use in regular commercial outlets. Present studies are directed towards reducing the percentage of coarse meal and increasing the percentage of purified fine meal. Cost estimates are being made for comparison with those of other processing methods.

18 GROS, Audrey T., and FEUGE, R.O.

MODIFICATION OF VEGETABLE OILS: VIII. CONVERSION OF MONOESTERS OF PEANUT OIL FATTY ACIDS TO TRIGLYCERIDES. J. Am. Oil Chemists' Soc. 26 (12), 704-9 (1949).

Conversion of the methyl and ethyl esters of peanut oil fatty acids into triglycerides by means of alcoholysis and ester-ester interchange reactions was investigated to establish the conditions most conducive to rapid and complete transformation. The most effective catalysts for alcoholysis were found to be barium hydroxide, lithium hydroxide, sodium ethylate, and sodium hydroxide. When equivalent quantities of monoesters were allowed to interact, the initial rate of alcoholysis was influenced markedly by the temperature and concentration of catalyst and to some extent by the pressure. Monoesters were converted fairly completely into triglycerides by reacting with an excess of glycerol and then decomposing the resulting glycerides by heating and stripping with steam under low pressure. Ester-ester interchange reactions using triacetin and methyl or ethyl esters did not proceed as well as has been reported in the literature.

19 HUSSAIN, S.A. DOLLEAR, F.G., and O'CONNOR, R.T.

OIL FROM THE KERNELS OF LALOB FRUIT, BALANITES AEGYPTIACA. J. Am. Oil Chemists' Soc. 26 (12), 730-2 (1949).

Lalob fruit from the Sudan was examined by modern chemical and physical methods. The kernels, which amount to 9 to 10 percent of the fruit, contain approximately 46 percent oil. Extraction of the ground kernels with commercial hexane yields a light yellow oil, having a composition calculated from iodine-thiocyanogen values corresponding to 43.8 percent linolein, 30.5 percent olein, 23.7 percent saturated acid glycerides, and 2.0 percent unsaponifiable matter. Calculation of the composition from ultraviolet absorption measurements gave results in fairly close agreement with those obtained by the iodine-thiocyanogen method. It was shown that the color of the crude oil was due almost entirely to the presence of a-carotene.

20 LOEB, J.R., MORRIS, N.J., and DOLLEAR, F.G.

RICE BRAN OIL. IV. STORAGE OF THE BRAN AS IT AFFECTS HYDROLYSIS OF THE OIL. J. Am. Oil Chemists' Soc. 26 (12), 738-43 (1949).

An investigation of factors affecting the formation of free fatty acids in stored bran from both regular and "Converted" rice is reported. It was found that decreasing the storage temperature tends to retard the formation of these acids. The study also showed that bran from both regular and "Converted" rice can be stored for at least four months without excessive increase in the content of free fatty acids, provided the bran is dried sufficiently and is maintained at a low moisture content. A rise in the moisture content of predried bran causes a rapid increase in the free fatty acid content of the oil in the bran. Investigations of the effect of chemical inhibitors and of inert atmosphere on the rate of free fatty acid formation of regular rice bran indicated that these were ineffective in preventing deterioration.

21 MARKLEY, K.S.

RICE BRAN OIL.VI. SOME ASPECTS OF PROCESSING AND UTILIZATION OF RICE BRAN OIL. The Rice Journal 52 (10), 14, 30-5 (1949).

The economic importance of rice is reviewed with emphasis upon the advantages to this country of developing new markets for all the byproducts of the rice milling industry. One of these byproducts, rice bran, is a potential source of about 50 million pounds of high quality edible oil a year, but its use for this purpose presents a number of problems not usually encountered by the oil processing industry. The Southern Laboratory's attack on these problems includes research on the extraction, composition, utilization, and stability of rice bran oil, and on the rate of deterioration of the oil in the bran after separation of the latter from the brown rice. The status of these investigations in October, 1949, and some of the results obtained, are summarized.

22 O'CONNOR, Robert T., FIELD, Elsie T., JEFFERSON, M.E., and DOLLEAR, F.G.

THE INFLUENCE OF PROCESSING ON THE SPECTRAL PROPERTIES OF VEGETABLE OILS. J. Am. Oil Chemists' Soc. 26 (12), 710-18 (1949).

Data are presented on the results of a detailed examination of the absorption spectra from 220 mμ to 720 mμ of typical cottonseed, soybean, peanut, sesame, okraseed, and rice bran oils. The absorption measurements were made on both crude and processed oils at successive processing steps of refining, bleaching, and deodorizing. Findings are summarized for the ultraviolet region from 220 mμ, for the near ultraviolet and the blue to blue-green portions of the visible region between 320 mμ and 500 mμ, and for the visible portion of the spectra above 500 mμ.

23 PONS, Walter A. Jr., and GUTHRIE, John D.

DETERMINATION OF FREE GOSSYPOL IN COTTONSEED MATERIALS. J. Am. Oil Chemists' Soc. 26 (11), 671-6 (1949).

A method for the determination of free gossypol in cottonseed materials is described. The gossypol is extracted with a measured volume of 70 percent aqueous acetone on a shaker for one hour, then is filtered, and a colorimetric analysis of the filtrate made by means of the reaction between gossypol and p-anisidine. The conditions for complete extraction of gossypol from various types of cottonseed materials were investigated, and the stability of gossypol in aqueous acetone was demonstrated. Data also are presented on the recovery of gossypol added to cottonseed materials.

24 SINGLETON, W.S.

PHASE INVESTIGATIONS OF FATS. III. SYSTEMS CONTAINING OLEIC AND PALMITIC ACIDS AND AN ORGANIC SOLVENT. J. Am. Oil Chemists' Soc. 26 (7), 332-6 (1949).

The ternary systems, oleic acid-palmitic acid-commercial hexane and oleic acid-palmitic acid-acetone, containing varying amounts of the three components were equilibrated at 0 degrees, -10 degrees, -20 degrees, -30 degrees, and -40 degrees C. From compositional data of the liquid and solid phases in equilibrium at each isotherm, ternary phase diagrams were constructed. From these diagrams, which are reproduced in the article, it is possible to predict the degree of separation which can be obtained with any given mixture of oleic and palmitic acids, using either acetone or commercial hexane as solvent. The intersolubilizing effect of oleic acid on palmitic acid was found to be greater in commercial hexane than in acetone, although each acid is more soluble in acetone than in commercial hexane.

25 VIX, H.L.E., SPADARO, J.J., MURPHEY, C.H. Jr., PERSELL, R.M., POLLARD, E.F., and GASTROCK, E.A.

PILOT-PLANT FRACTIONATION OF COTTONSEED. II. DIFFERENTIAL SETTLING. J. Am. Oil Chemists' Soc. 26 (10), 526-30 (1949).

A new fractionation process termed "differential settling" has been developed to produce a cottonseed meal substantially free of oil, pigment glands, and hulls from either defatted or undefatted flakes. Work on this process was initiated during research on a mixed solvent flotation method of fractionation, which showed several inherent disadvantages, but which produced cottonseed meal essentially free of pigment glands (gossypol content as low as 0.006 percent). Such meal has high nutritional value and excellent potentialities for industrial use. Meal produced by the differential settling process has as low a gossypol content as the meal produced by the flotation principle and overcomes the disadvantages. Two methods, centrifugal and tube settling, have been developed which show promise for commercial use in combination with present solvent-extraction processes.

SEE ALSO NOS. 26 and 27.

Sweetpotatoes

SEE NOS. 26 and 27.

Miscellaneous

26 ANONYMOUS

LIST OF PATENTS WITH ABSTRACTS, JANUARY 1, 1944-JUNE 30, 1949. AIC-248. Mimeographed, 7 pp., August 18, 1949.

Brief reviews are given of 28 patents granted the Southern Regional Research Laboratory January 1, 1944-June 30, 1949 on methods of processing cotton lint, cottonseed, peanuts, sweetpotatoes, and goldenrod rubber. These patents, assigned to the United States Government as represented by the Secretary of Agriculture, are available for licensing on a royalty-free, non-exclusive, revocable, and non-transferable basis.

27 GUTHRIE, John D., HOFFPAUIR, Carroll L., STANSBURY, Mack F., and REEVES, Wilson A.

SURVEY OF THE CHEMICAL COMPOSITION OF COTTON FIBERS, COTTONSEED, PEANUTS, AND SWEETPOTATOES. A LITERATURE REVIEW. Mimeographed. AIC-61 (Revised). 116 pp. (1949).

A revision of a similar review published in 1944, this survey has a two-fold purpose: to present available information about the composition of cotton fibers, cottonseed, peanuts, and sweetpotatoes in a convenient and useful form, and to show where knowledge of the composition of these commodities is inadequate or lacking. An attempt has been made to include information on all substances reported to be present in the commodities except where later literature has rather definitely shown the substance to be absent or incorrectly identified. References include 85 on cotton fibers, 119 on cottonseed, 134 on peanuts, and 94 on sweetpotatoes.

28 NEWTON, Harry P.

*CHEMISTRY AT WORK DEVELOPING NEW USES FOR FARM PRODUCTS. Presented before the Executives' Club of Louisiana, Inc., New Orleans, La., August 25, 1949, and before the Louisiana-Mississippi Industrial Power Application Conference, New Orleans, La., November 17, 1949.

Some of the principles which guide chemurgic research at the Southern Regional Research Laboratory are discussed, and examples of developments which have practical value for industry are given. These examples include chemically modified cotton fabrics having ion-exchange properties; new, widely accepted methods of processing pine gum; a method for the commercial production of 4-fold frozen orange juice concentrate developed in cooperation with industry; and a method for the recovery from sugarcane juices and molasses of aconitic acid, a product suitable for use by the plastics industry. Such developments, it is pointed out, indicate that chemistry at work for man may be only on the threshold of its ultimate achievement.

29 REEVES, Richard E.

2, 3-BENZYLIDENE-1, 4-ANHYDRO-D-MANNITOL. A CASE OF BENZYLIDENE MIGRATION. J. Am. Chem. Soc. 71 (8), 2868-70 (1949).

A new anhydro-D-mannitol derivative, 2,3-benzylidene-1,4-anhydro-D-mannitol, is described and doubt is cast on the structures 5,6-benzylidene-1,4-anhydro-D-mannitol and 2,3-dibenzoyl-5,6-benzylidene-1,4-anhydro-D-mannitol previously assigned to two other substances.

PRESS NOTICES

Insect-repellent Treatment for Cotton Bags Developed. USDA 1555-49. July 22, 1949.

New Process for Stabilizing Guncotton Aids National Defense. Research Achievement Sheet 123 (C). October 1949.

New Process for Stabilizing Guncotton Aids National Defense. USDA 2633-49. December 9, 1949.

More Useful Cotton Fabrics. Farm Flash L-349. December 1949.

Research on Improving Luster of Cotton Textiles. USDA 2769-49. December 27, 1949.

PATENTS

(Copies of patents are not available from the Southern Regional Research Laboratory, but may be purchased for 25 cents each from the United States Patent Office, Washington, D. C.)

BOATNER, Charlotte H., HALL, Catherine M., and MERRIFIELD, Arthur L.

HEAVY GRAVITY LIQUID SEPARATION OF COTTON SEED. U. S. Patent No. 2,482,141. Issued September 20, 1949.

This patent describes a process for separating the pigments from a cottonseed product containing substantially intact pigment glands embedded in the seed embryo tissues. The process comprises treating the product to disintegrate the embryo tissue and release the intact pigment glands, mixing with a liquid which does not substantially rupture the pigment glands and which has a density greater than that of the pigment glands to be separated and less than that of the remaining parts, and then settling the mixture so that the pigment glands float to the top where they can be removed.

RUSCA, Ralph A.

METHOD AND APPARATUS FOR ELECTRICAL HEATING. U.S. Patent No. 2,492,187. Issued December 27, 1949.

A device for heating textile materials by the action of electrostatic fields created by high frequency electrical currents is described. The device consists of a row of relatively thin, flat electrode plates disposed in spaced, parallel relation facing each other and having aligned openings through which a material may be made to pass from one electrode to the other. It is especially applicable to the rapid drying of cotton cord used in the construction of pneumatic vehicle tires after the cord has been subjected to a treatment employing water or other liquids. Uniform heating of the cord is obtained and all glazing of the periphery of the cord is completely eliminated.

YOUNG, Ray C., and BROWN, John J.

CORD STRETCHING APPARATUS. U. S. Patent No. 2,474,927. Issued July 5, 1949.

The stretch in cotton cord under constant tension is not uniform because of the nature of the cord's construction. However, when laid parallel to each other in tire plies or in belting, the cords must be balanced throughout their length, and in relation to each other. The patent describes a means of achieving this result by stretching the cord under such conditions that the tension remains constant despite variations in the percentage of stretch caused by lack of uniformity in the cord itself. A mechanism is employed which applies a constant force and moves in unison with, or in proportion to, the percentage elongation, or stretch, in the cord. The movement of the mechanism is transferred to a device which takes up slack in the cord caused by excessive stretch.

REPUBLICATIONS

KARON, M. L., and ADAMS, Mabelle E.

HYGROSCOPIC EQUILIBRIUM OF RICE AND RICE FRACTIONS. Cereal Chemistry 26 (1), 1-12 (1949). Republished in the Rice Journal 52 (11), 6, 21-4 (1949).

COTTON, Richard T., FRANKENFELD, Justus C., and STRICKLAND, Winston B.

INSECT-REPELLENT COTTON BAGS. Circular E-783. Processed, July 1949. Republished in Textile Industries 113 (10), 94, 264-66 (1949); and also in Modern Packaging 23 (3), 126-7 (1949).